

**BEST AVAILABLE COPY****Amendments to the Claims:**

The following is a listing of all the claims submitted in this application including the present status of each. Any claims canceled in this application are done so without prejudice or disclaimer of any subject matter. Applicant specifically reserves the right to pursue any and all canceled claims in future divisional and/or continuing applications. By this paper claims 33-39 have been canceled.

**Listing of Claims.**

1(previously presented). An automated method of optimising crystallisation conditions for macromolecules comprising forming a crystallisation trial, the trial comprising a sample comprising:

- (a) a gel forming component; and
- (b) a macromolecule to be crystallised, wherein at least one component of the trial is dispensed using an automatic liquid dispensing system.

2(previously presented). A method according to claim 1 wherein a layer of oil is present over the sample.

3(previously presented). A method according to claim 2 wherein the sample and oil are dispensed from different tips of the automatic liquid dispensing system.

4(previously presented). A method according to either one of claims 2 or 3 wherein the oil is dispensed first and the sample

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is dispensed under the oil.

5(previously presented). A method according to any one of claims 1 to 3 wherein a surface onto which the gel-forming component or sample is dispensed is a greased surface.

6(previously presented). A method according to claim 5 wherein the grease is a high-vacuum silicone grease.

7(previously presented). A method according to claim 1 further comprising:

- (c) incubating the sample as a drop in the presence of a first reservoir with a composition having a higher solute concentration than that of the sample; and
- (d) transferring the drop into the presence of a second reservoir with a composition having a lower solute concentration than the first reservoir by means of an automatic robot.

8(previously presented). The method according to claim 7 wherein the first reservoir composition is covered with a layer of oil.

9(previously presented). A method according to either one of claims 2 or 8 wherein the oil layer permits diffusion from the sample.

10(previously presented). The method according to either one of claims 1 or 7 wherein the gel-forming component is or comprises a material selected from the group consisting of

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agarose and tetramethyl ortho silane (TMOS).

11(previously presented). The method of claim 10 wherein the gel-forming component is or comprises tetramethyl ortho silane (TMOS) and is at a final concentration of 0.2%.

12 (previously presented). The method of either one of claims 1 or 7 wherein the volume of sample dispensed is less than 5 $\mu$ l.

13(previously presented). The method of claim 12 wherein the volume of sample is between 1.5 $\mu$ l and 2 $\mu$ l.

14(previously presented). The method of either one of claims 2 or 8 wherein the oil layer includes paraffin.

15(previously presented). The method of either one of claims 2 or 8 wherein the oil layer is a mixture of oils.

16(previously presented). The method of claim 15 wherein the oil layer comprises silicone.

17(previously presented). The method of claim 14 wherein the oil layer consists of paraffin.

18(previously presented). The method of either one of claims 1 or 7 wherein the sample is dispensed into wells of a 1536-well microassay plate.

19(previously presented). A method according to either one of claims 2 or 8 wherein the oil layer over the sample permits vapour diffusion between the sample and the environment due to the thinness of the layer.

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20(previously presented). An automated method of optimizing crystallization conditions for macromolecules comprising using an automated liquid dispensing system capable of dispensing volumes of liquid between 0.1µl to 5µl for dispensing a sample of gel-forming component and a macromolecule to be crystallized.

21-22(canceled).

23(previously presented). A method according to claim 20 wherein the gel-forming component is 0.2% tetramethyl ortho silane (TMOS).

24-31(cancelled).

32(previously presented). A method according to claim 20 wherein the automated liquid dispensing system is selected from machines computerized and programmed to dispense varying amounts and concentrations of material.

33-39(canceled).

40(previously presented). A method according to either one of claims 1 or 7 wherein the macromolecule is a biological macromolecule.

41(previously presented). A method according to claim 40 wherein the biological macromolecule is a polypeptide.

42(previously presented). A method according to either one of claims 1 or 7 including the use of a material selected from the group consisting of one or more oils.

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43(previously presented). A method according to claim 42 wherein the oil includes a material selected from the group consisting of silicone, paraffin and grease including high-vacuum silicone grease.

44(previously presented). A method according to claim 43 wherein the grease is provided on a multi-well plate.

45(previously presented). A method according to either one of claims 1 or 7 further comprising using an automated liquid dispensing system capable of dispensing volumes of liquid between 0.1 $\mu$ l to 5 $\mu$ l for dispensing a sample of gel-forming component and a macromolecule to be crystallized.